Trend Study 30-56-03

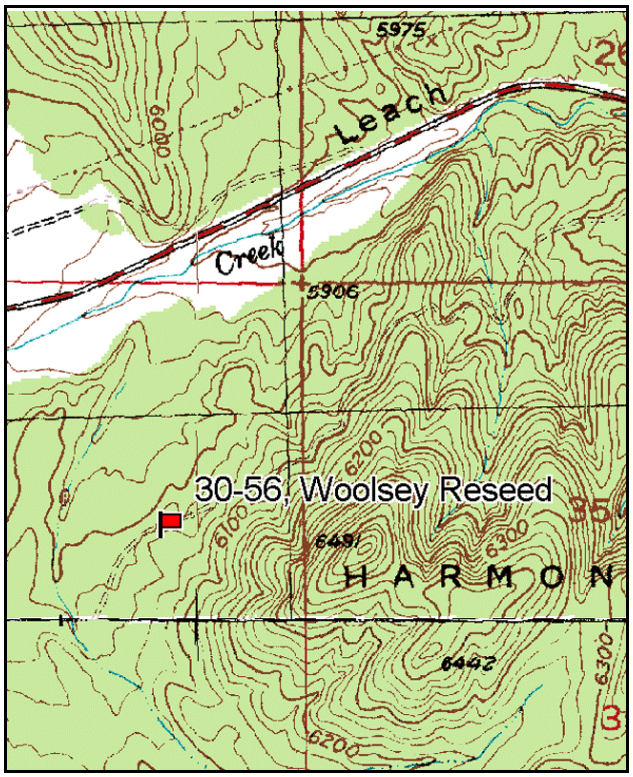
Study site name: Woolsey Reseed . Vegetation type: Chained, Seeded P-J .

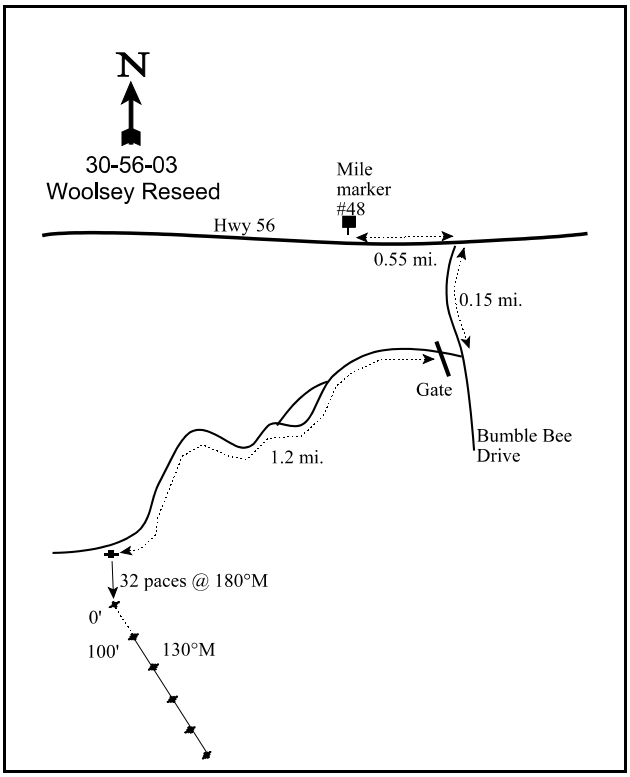
Compass bearing: frequency baseline 130 degrees magnetic.

Frequency belt placement: line 1 (11ft), line 2 (34ft), line 3 (59ft), line 4 (71ft), line 5 (95ft).

LOCATION DESCRIPTION

From mile marker 48 on Highway 56 go east 0.55 miles to Bumblebee drive. Turn right (south) and travel 0.15 miles crossing a bridge to a right turn. Take this turn, go thru a gate, and proceed 1.2 miles to a witness post in a chaining. From the witness post the 0-foot stake is 32 paces directly south. The 0-foot stake is marked by browse tag # 95. The study is marked by green steel "T" fence posts approximately 12 to 18 inches in height.





Map Name: Desert Mound

Diagrammatic Sketch

Township 36S , Range 13W , Section 34

GPS: NAD 27, UTM 12S 4166685 N, 297671 E

DISCUSSION

Woolsey Seeding - Trend Study No. 30-56

This trend study was established in 1998. It is located on the Woolsey seeding and samples a chained and seeded pinyon and juniper site that is considered important deer winter range. The site has a northwest aspect and a slope from 10% to 15%. Elevation is approximately 6,000 feet. The land is administered by the BLM. Deer are thought to concentrate on the chaining during the winter and cattle also graze the area during the spring and summer. Pellet group data estimated 37 deer days use/acre in 1998 and 44 in 2003 (91 and 109 ddu/ha). Cattle use was estimated at 55 cow days use/acre in 1998 and 26 in 2003 (136 and 65cdu/ha). The site was read in late May of 2003. Cattle had just started using the area at that time and cattle pats counted represented cattle use from the summer of 2002. Escape cover for deer is abundant in the form of large serviceberry on the site and unchained pinyon and juniper trees about 500 feet to the east.

Soil on the site is moderately deep, and rocky on the surface and through the profile. Effective rooting depth is estimated at 16 inches. Soil texture is a clay loam which is neutral in reaction (pH 7.0). Phosphorus is low at only 6.1 ppm when 10 ppm is considered a minimum value for normal plant development. Erosion is not a problem on the site due to the abundant protective ground cover consisting primarily of herbaceous vegetation and old chaining litter.

The site supports low densities of several preferred browse species including Utah serviceberry, mountain big sagebrush, dwarf rabbitbrush, rubber rabbitbrush, cliffrose, antelope bitterbrush, curlleaf and true mountain mahogany. The most abundant of these is rubber rabbitbrush which numbered about 300 plants/acre in 1998 and 2003. Most of the other preferred shrubs were not adequately sampled because they occur in such limited numbers. Cliffrose and bitterbrush were heavily hedged with serviceberry moderately utilized during both readings. True mountain mahogany and curlleaf mountain mahogany were also heavily hedged during both readings. Young pinyon and juniper trees have been released by the chaining. These are young trees in the 4 to 6 foot class, not killed by the chaining. They are fairly abundant. Point-quarter data from 2003 estimated 63 Utah juniper and 41 pinyon trees/acre. Average basal diameter was 3.4 inches for juniper and 2.3 inches for pinyon. Pinyon and juniper provided nearly 4% cover which accounted for 53% of the shrub cover in 1998. Overhead canopy cover was almost 3% for juniper and pinyon. Data from 2003 estimated a line-intercept canopy cover of 6% for juniper and 1.25% for pinyon, over a twofold increase since 1998.

Seeded grasses dominate the site. Crested wheatgrass, intermediate wheatgrass, and Russian wildrye are abundant and provided 96% of the grass cover in 1998 and 99% in 2003. Three native perennial grasses are also present in small numbers as is annual cheatgrass. The forb component is diverse with 15 and 17 species encountered in 1998 and 2003 respectively. However, all species occur rarely and all forbs combined produced only about 1% cover during either reading.

1998 APPARENT TREND ASSESSMENT

The soil appears stable due to the abundant protective ground cover consisting primarily of perennial herbaceous vegetation and litter from the chaining. There is a variety of browse species on the site, although none are very abundant. The most preferred species are being heavily utilized. Trend appears stable, but management strategies to increase the shrub component on the site would be desirable for deer winter range improvement. The herbaceous understory is abundant and well established. However, composition could be better as three seeded grasses dominate and forbs are limited.

2003 TREND ASSESSMENT

Trend for soil is stable. Relative percent cover of vegetation has declined slightly while litter cover increased

slightly and cover of bare ground declined to 10%. Cover of herbaceous vegetation declined since 1998 due to drought, but is is still well distributed and has helped stabilized the soil on the site. Trend for browse is stable although the browse component is limited. There are several preferred species which occur in very small numbers and are heavily hedged. All species, serviceberry, mountain big sagebrush, curlleaf mahogany, rubber rabbitbrush, cliffrose, and bitterbrush, displayed normal vigor even with the heavy use. Trend for the herbaceous understory is down. Sum of nested frequency for perennial grasses declined by 37% since 1998. There was some difficulty differentiating crested and intermediate wheatgrass in 2003 due to late flowering. However, the combined nested frequency value for these grasses declined 34%. Nested frequency of the only other seeded grass, Russian wildrye, also declined significantly. Average cover of perennial grasses declined more than twofold from 27% to 11%. Forbs remain diverse but all species are rare in their occurrence. Nested frequency of perennial forbs also declined although total cover of forbs remained similar to 1998 levels due to an increase in annual forb cover.

TREND ASSESSMENT
soil - stable (3)
browse - stable but limited (3)
herbaceous understory - down (1)

HERBACEOUS TRENDS --
Management unit 30 , Study no: 56

Type	Species	Nested Frequency		Average Cover %	
		'98	'03	'98	'03
G	Agropyron cristatum	$_{a}$190	$_{b}$262	8.09	8.57
G	Agropyron intermedium	$_{b}$287	$_{a}$54	13.56	1.39
G	Bromus tectorum (a)	$_{b}$75	$_{a}$14	.75	.04
G	Elymus junceus	$_{b}$110	$_{a}$57	4.10	1.38
G	Oryzopsis hymenoides	-	-	.03	.00
G	Poa secunda	4	2	.01	.03
G	Sitanion hystrix	3	-	.15	-
Total for Annual Grasses		75	14	0.75	0.04
Total for Perennial Grasses		594	375	25.96	11.39
Total for Grasses		669	389	26.71	11.43
F	Astragalus spp.	5	1	.09	.00
F	Cryptantha spp.	-	4	-	.03
F	Cymopterus spp.	7	8	.09	.04
F	Dalea flavescens	5	-	.30	-
F	Descurainia pinnata (a)	$_{a}$5	$_{b}$22	.01	.14
F	Draba spp. (a)	11	27	.03	.16
F	Eriogonum umbellatum	3	2	.03	.03
F	Lappula occidentalis (a)	3	15	.01	.20
F	Lesquerella spp.	4	3	.07	.01
F	Lotus utahensis	2	-	.03	-

Type	Species	Nested Frequency		Average Cover %	
		'98	'03	'98	'03
F	Lupinus argenteus	3	-	.00	-
F	Microsteris gracilis (a)	21	8	.05	.02
F	Pedicularis centranthera	-	6	-	.44
F	Penstemon spp.	4	4	.00	.01
F	Petradoria pumila	9	4	.18	.01
F	Phlox hoodii	5	4	.04	.01
F	Phlox longifolia	-	1	-	.00
F	Polygonum douglasii (a)	-	6	-	.01
F	Ranunculus testiculatus (a)	-	1	-	.00
F	Streptanthus cordatus	$_{a}$2	$_{b}$13	.01	.03
Total for Annual Forbs		40	79	0.10	0.54
Total for Perennial Forbs		49	50	0.85	0.64
Total for Forbs		89	129	0.96	1.19

Values with different subscript letters are significantly different at alpha = 0.10

BROWSE TRENDS --
Management unit 30 , Study no: 56

Type	Species	Strip Frequency		Average Cover %	
		'98	'03	'98	'03
B	Amelanchier utahensis	2	1	.85	.98
B	Artemisia tridentata vaseyana	1	1	-	-
B	Cercocarpus montanus	1	1	-	-
B	Chrysothamnus depressus	18	4	.55	-
B	Chrysothamnus nauseosus hololeucus	8	6	1.56	.45
B	Cowania mexicana stansburiana	0	3	-	-
B	Eriogonum microthecum	3	3	.03	.01
B	Gutierrezia sarothrae	20	20	.45	.26
B	Juniperus osteosperma	4	4	1.94	5.10
B	Opuntia spp.	0	1	-	-
B	Pinus edulis	3	1	1.97	.18
B	Purshia tridentata	0	0	.03	-
B	Ribes spp.	1	0	-	-
Total for Browse		61	45	7.40	6.98

CANOPY COVER, LINE INTERCEPT --
Management unit 30 , Study no: 56

Species	Percent Cover	
	'98	'03
Amelanchier utahensis	-	.81
Chrysothamnus nauseosus hololeucus	-	.16
Cowania mexicana stansburiana	-	.08
Gutierrezia sarothrae	-	.50
Juniperus osteosperma	.60	6.15
Pinus edulis	2.20	1.26

KEY BROWSE ANNUAL LEADER GROWTH --
Management unit 30 , Study no: 56

Species	Average leader growth (in)
	'03
Amelanchier utahensis	1.6
Cowania mexicana stansburiana	1.8
Purshia tridentata	0.9

POINT-QUARTER TREE DATA --
Management unit 30 , Study no: 56

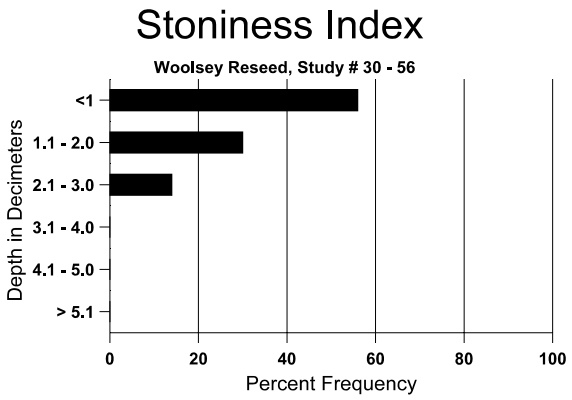
Species	Trees per Acre		Average diameter (in)	
	'98	'03	'98	'03
Juniperus osteosperma	59	63	2.0	3.4
Pinus edulis	28	41	2.0	2.3

BASIC COVER --
Management unit 30 , Study no: 56

Cover Type	Average Cover %	
	'98	'03
Vegetation	39.56	20.13
Rock	5.94	8.19
Pavement	9.63	19.89
Litter	52.22	47.84
Cryptogams	.24	.04
Bare Ground	18.28	10.11

SOIL ANALYSIS DATA --
Management unit 30, Study no: 56, Study Name: Woolsey Reseed

Effective rooting depth (in)	Temp °F (depth)	pH	%sand	%silt	%clay	%0M	PPM P	PPM K	ds/m
16.1	61.8 (14.7)	7.0	38.0	25.4	36.6	3.5	6.1	118.4	0.7



PELLET GROUP DATA --
Management unit 30 , Study no: 56

Type	Quadrat Frequency '98	Quadrat Frequency '03	Days use per acre (ha) '98	Days use per acre (ha) '03
Rabbit	25	23	-	-
Deer	24	30	36 (89)	44 (109)
Cattle	11	8	54 (133)	26 (64)

BROWSE CHARACTERISTICS --
Management unit 30 , Study no: 56

		Age class distribution (plants per acre)					Utilization				
Year	Plants per Acre (excluding seedlings)	Seedling	Young	Mature	Decadent	Dead	% moderate	% heavy	% decadent	% poor vigor	Average Height Crown (in)
Amelanchier utahensis											
98	**40**	-	-	40	-	-	100	0	-	0	37/51
03	**40**	20	20	20	-	-	50	0	-	0	58/70
Artemisia tridentata vaseyana											
98	**20**	-	20	-	-	-	0	0	-	0	-/-
03	**20**	-	-	20	-	-	0	100	-	0	8/-
Cercocarpus ledifolius											
98	**0**	-	-	-	-	-	0	0	-	0	-/-
03	**0**	-	-	-	-	-	0	0	-	0	35/47

		Age class distribution (plants per acre)					Utilization				
Year	Plants per Acre (excluding seedlings)	Seedling	Young	Mature	Decadent	Dead	% moderate	% heavy	% decadent	% poor vigor	Average Height Crown (in)
Cercocarpus montanus											
98	**20**	-	-	20	-	-	0	100	0	0	50/54
03	**20**	-	-	-	20	-	0	100	100	0	64/60
Chrysothamnus depressus											
98	**620**	20	100	520	-	-	0	0	-	0	4/6
03	**100**	-	20	80	-	-	0	0	-	0	3/5
Chrysothamnus nauseosus hololeucus											
98	**300**	-	40	180	80	-	40	0	27	13	34/43
03	**320**	-	-	300	20	60	6	0	6	0	30/38
Cowania mexicana stansburiana											
98	**0**	-	-	-	-	20	0	0	0	0	62/66
03	**60**	-	-	40	20	-	0	33	33	0	54/56
Eriogonum microthecum											
98	**60**	-	20	40	-	-	0	0	0	0	4/11
03	**80**	-	-	60	20	-	100	0	25	0	1/2
Gutierrezia sarothrae											
98	**1180**	80	60	1120	-	20	0	0	0	0	7/10
03	**1260**	640	40	1180	40	40	0	0	3	2	5/6
Juniperus osteosperma											
98	**100**	40	40	60	-	60	0	0	-	0	-/-
03	**100**	-	-	100	-	-	0	0	-	0	-/-
Opuntia spp.											
98	**0**	-	-	-	-	-	0	0	-	0	-/-
03	**20**	-	-	20	-	-	0	0	-	0	3/5
Pinus edulis											
98	**60**	-	40	20	-	20	0	0	-	0	-/-
03	**20**	-	-	20	-	-	0	0	-	0	-/-
Purshia tridentata											
98	**0**	-	-	-	-	-	0	0	-	0	33/70
03	**0**	-	-	-	-	20	0	0	-	0	27/37
Ribes spp.											
98	**80**	-	-	80	-	-	0	0	-	0	-/-
03	**0**	-	-	-	-	-	0	0	-	0	-/-
Sclerocactus											
98	**0**	-	-	-	-	-	0	0	-	0	-/-
03	**0**	-	-	-	-	-	0	0	-	0	3/7